REMARKS

Claims 1-10 are pending in the current application. In an office action dated April 1, 2009 ("Office Action"), the Examiner re-opened prosecution, indicated conditional allowance of claims 2, 4, 5, and 9, and rejected claims 1 and 3 under 35 U.S.C. §103(a) as being unpatentable over Erimli et al., US Patent No. 6,405,258 B1 ("Erimli I") in view of Erimli et al., US Patent No. 5,953,335 ("Erimli II"), rejected claims 6, 8, and 10 under 35 U.S.C. §103(a) as being unpatentable over Erimli I in view of Simmons et al., US Patent No. 6,167,054 ("Simmons"), and rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over Erimli I in view of Simmons and in further view of Erimli II. Applicants wish to thank the Examiner for the conditional allowance of claims 2, 4, 5, and 9, but defer rewriting these claims in independent form until the Examiner has considered the arguments that follow. Applicants respectfully traverse the rejections of the current claims.

The current claims include two independent claims, claims 1 and 6. Claim 1, a method claim, includes the step "providing each transmitting port in the network multiplexer with a high threshold and a low threshold." Independent claim 6 includes the element "a high threshold and a low threshold associated with each transmit queue." The high and low thresholds associated with transmit queues are discussed beginning on line 7 of page 15 of the current application, and in the paragraph that begins on line 27 of page 15 of the current application. Both the low and high threshold contain threshold values related to the number of message descriptors queued to the transmit queue. As discussed in the paragraph that begins on line 27 of page 15:

> In the method of the present invention, when a source attempts to queue a message descriptor to a transmit queue, and the transmit queue is full, then the message descriptor is simply discarded. When a source attempts to queue a message descriptor to a transmit queue already containing a number of message descriptors greater than the high threshold, then the transmit queue sends a flow control directive to the source to direct the source to employ hardware or protocol-level flow control procedures in order to temporarily prevent reception of additional communications packets by the source. When the number of message descriptors queued within the transmit queue has equaled or exceeded the high threshold value, and then falls below one less than the high threshold value, then a source may queue a message descriptor to the transmit queue

> without receiving a flow control directive. When the number of message descriptors in a transmit queue has equaled or exceeded the high threshold value, and the number of entries has fallen below the low threshold value, then the transmit queue sends release flow control messages to any sources to which the transmit queue had sent flow control messages during the time when the number of queued message descriptors equaled or exceeded the high threshold. However, a transmit queue will not release sources from flow control until the number of queued message descriptors falls below the low threshold.

Thus, both the low threshold and the high threshold describe numbers of queued entries, the low threshold containing a value less than the value contained in the high threshold. The high threshold value is less than the maximum number of entries in the queue, to allow for queuing of some number of message descriptors that arrive after flow control is invoked, when the number of entries exceeds, or is equal to, the high threshold, depending on the implementation, as discussed in the paragraph beginning on line 6 of page 18.

In rejecting claims 1 and 3, on page 3 of the Office Action, the Examiner cites, in Erimli I, Figure 5A in combination with Figure 6 and lines 5-32 of column 12 as teaching "providing each transmitting port in the network multiplexer with a high threshold and a low threshold." Figure 5A "is a block diagram illustrating a portion of the configuration status registers 52 of FIG. 2 that are programmable by the host processor 40." Figure 2 of Erimli I shows a block diagram of a network switch 12 that includes a small block 52 representing a set of configuration status registers. Erimli I describes these configuration status registers, beginning on line 1 of column 12, as follows:

> As shown in FIG. 5A, the control registers 52 include ***a set of threshold registers*** 500 ***for storing watermark thresholds, or saturation levels, for the internal resources*** of the output ports of the network switch 12. The saturation level corresponds to a level that, if exceeded, can result in a loss of data by a particular port of the network switch 12. ***Specifically, a high priority threshold register 510 is used to store the value of the watermark threshold level for the high priority input 410b of the output queue 400, and low priority threshold register 512 is used to store the watermark threshold level for the low priority input 410a of the output queue 400.*** According to the disclosed embodiment of the present invention, the saturation levels are determined based on the number of entries currently

> stored in the output queue 400. Hence, ***the watermark threshold levels identify a maximum number of entries that are allowed in the specified output queue*** 400. As previously stated, the values of the low and high priority watermark thresholds may be independently and dynamically set according to a maximum number of free frame pointers stored in low and high priority inputs of the output queue 400. (emphasis added)

As is clear from this passage, both the high and low configuration-status registers 240*a* and 240*b* shown in Figure 5A are watermark thresholds that "identify a maximum number of entries that are allowed in the specified output queue." Watermark threshold level 240*a* indicates the maximum number of entries input to the queue by a high-priority input source and watermark threshold 240*b* indicates the maximum number of entries input to the queue by a low-priority input source. In other words, these are both high thresholds, both specifying a maximum number of entries for a particular input source. The words "high" and "low" in Figure 5A are directed to the priority level of input sources, rather than indicating that one threshold is a "high threshold" and the other input is a "low threshold." Each of the configuration-status registers of Figure 5A is associated with both an input source and an output queue.

Clearly, Erimli I does not teach, mention, or suggest "providing each transmitting port in the network multiplexer with a high threshold and a low threshold," according to the definition of the phrases "low threshold" and "high threshold" in the current application. Erimli I does not actually use the phrases "low threshold" and "high threshold," in the cited passages, but instead clearly indicates that the configuration status registers shown in Figure A are watermark thresholds for a high-priority source and a low-priority source of entries that are queued to an output queue. Furthermore, as discussed above, the high threshold associated with a transmit queue in the currently claimed invention does not specify a maximum number of entries that are allowed to be queued to that transmit queue, but instead specifies a number of entries that, when present in the queue, initiate sending of a flow-control directive to the source of entries in order to stop the flow of messages into the queue. As discussed at length in the current application, the high threshold is set to a value less than the total capacity of the queue, since there is a time lag between sending a flow-control directive to a source of message descriptors and effective blocking of the sending of additional message descriptors, as

discussed in the paragraph of the current application beginning on line 6 of page 18.

Erimli I does not teach, mention, or suggest that for which it is cited. Simply finding the terms "high" and "low" labeling two configuration status registers in Figure 5A does not constitute finding a teaching, mention, or suggestion of either the step "providing each transmitting port in the network multiplexer with a high threshold and low threshold" for the element of claim 6: "a high threshold and a low threshold associated with each transmit queue." The two configuration status registers in Figure 5A are essentially high-water marks associated with two different inputs to a queue, rather than a high threshold and a low threshold associated with a queue.

In drafting the rejection of claim 1, the Examiner has misrepresented claim 1. Beginning with the last line of page 3 of the Office Action and continuing to the first few lines of page 4, the Examiner restates the final portion of claim 1 as follows:

> when the transmit queue currently contains a maximum number of message descriptors (see, maximum number of frame pointers stored in the queue, col. 12, lines 15-22), sending a flow control request to the receiving port that received the communications packet referenced by the queued message descriptor (see, generation of a pause frame to discontinue transmission of frame, col. 15, lines 44-51, noted...

However, the actual language of claim 1 is:

> when the transmit queue currently contains a maximum number of message descriptors, ***discarding the message descriptor, and***
> ***when the transmit queue currently contains a number of message descriptors equal to or greater than the high threshold of the associated transmitting port,*** sending a flow control request to the receiving port that received the communications packet referenced by the queued message descriptor. (emphasis added)

The portion of the final part of claim 1 that is bolded and italicized, above, is omitted by the Examiner, significantly changing the meaning of claim 1. In Applicants' representative's respectfully offered opinion, omission of the language "discarding the message descriptor, and when the transmit queue currently contains a number of message descriptors equal to or greater than the high threshold of the associated transmitting port" appears to be an attempt to read claim 1 onto an unrelated reference by disregarding a significant portion of the claim language. Clearly, Erimli I discloses only two high

thresholds, or watermark thresholds, that are associated both with an output queue and two different sources, and the watermark thresholds in Erimli I indicate the maximum number of entries that can be queued to an output queue by a particular source. By contrast, as clearly claimed in claim 1, and as described in the current application, high thresholds associated with an output queue in the currently claimed invention specify not the maximum number of entries that can be queued to an output queue, but, instead, a number of entries that elicit flow control. In other words, the high threshold provided in claim 1 and included as an element in claim 6 does not indicate the maximum numbers of entries that can be queued to an output queue, and serve a different purpose in the currently claimed invention than the high watermark threshold registers shown in Figure 5A of Erimli I. Because of the omission of language from claim 1, claim 1 appears to state that the flow control is initiated when a maximum number of entries are queued to the output queue, as is probably the case in Erimli I, rather than as a result of the number of queue entries equaling or exceeding a high threshold different from the maximum number of entries that can be queued to the queue.

The Examiner subsequently notes that at Erimli I does not teach discarding descriptors, on page 4 of the office action, and therefore cites claim 12 of Erimli II to fill this gap. However, as those familiar with communications devices, hardware circuitry, and software programming well understand, grafting a technique from one system onto another, without considering the context, overall operation, and, in the current case, reception and transmission protocols and queuing protocols, makes no sense. The Examiner cites lines 44-51 of column 15 of Erimli I as teaching the final element of claim 1, but, by disregarding much of the language of that element, has ignored the fact that the sending of a flow-control request, in claim 1, is tied to the transmit queue containing a number of message descriptors equal to or greater than the high threshold. There is no mention, on lines 44-51 of column 15, of any of the configuration status registers that contain watermark thresholds being used to initiate flow control.

It is clear that neither Erimli I nor Erimli II teaches, mentions, or suggests providing a high threshold and a low threshold for each transmit queue and using these

thresholds to decide when to exert flow control and when to release flow control. The Examiner does not cite Simmons for teaching the association of a high threshold and a low threshold for each transmit queue. Because Erimli I and Erimli II do not alone or in combination teach, mention, or suggest the currently claimed low and high thresholds, and because Simmons is not cited for teaching low and high thresholds associated with transmit queues, no combination of the three cited references can possibly make obvious the invention claimed in independent claims 1 and 6. No claim that depends from these two independent claims is therefore made obvious by any combination of the cited references.

Applicants' representative notes that the Examiner has also, in the rejection of claim 3, on page 5 of the Office Action, undertaken to fill in additional gaps in the cited reference Erimli I by simply claiming that it would be obvious to include a release flow-control request, without providing any substantial reason or analysis. Clearly, this violates the standards for obviousness-type rejections promulgated in the recent *KSR* decision, as discussed in M.P.E.P. §2141(III). Furthermore, this statement makes absolutely no sense. The pause frame mentioned in Erimli I and II includes a time interval for a source of queue entries to pause, or discontinue, transmitting those entries. There is no need, in such systems, for a release of flow control. Flow control is automatically released at the expiration of a timer set to the time interval indicated in the pause frame. Neither Erimli I nor Erimli II, which employ pause frames that specify pause intervals, could possibly employ a low threshold, as in the currently claimed invention, for deciding when to release flow control. In Erimli and Erimli II, a flow-control period is specified at the time that a queue becomes filled, and not later, after a sufficient number of entries have been dequeued from the queue.

In Applicants' representative's opinion, all of the claims remaining in the current application are clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

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